

## CLAIMS:

We claim:

1           1.     In a digital communications network, a method comprising:  
2                 monitoring a plurality of links to determine state changes of the links;  
3                 enforcing an IMA-ID check when an insufficient links state is reached;  
4                 relaxing the IMA-ID check when all the links are in an error state; and  
5                 re-enforcing an IMA-ID check when at least one link of the plurality of links  
6                 recovers from an error state .

1           2.     The method of claim 1, further comprising enforcing the IMA-ID check if a  
2                 near end IMA-ID does not match a far end IMA-ID.

1           3.     In a digital communications network, a method comprising:  
2                 restarting an existing IMA group, comprising  
3                     learning an IMA group ID of a far end IMA group;  
4                     making the IMA group ID persistent;  
5                     using only links matching the IMA group ID; and  
6                     placing non-matching links in an unusable state.

1           4.     The method of claim 3, wherein learning an IMA group ID further  
2                 comprises:  
3                     resynchronizing the IMA group; and



4 extracting the IMA group ID from a first connected link.

1 5. The method of claim 3, wherein making the IMA group ID persistent  
2 further comprises storing a new IMA group ID in memory.

1 6. The method of claim 3, wherein using only matching links further  
2 comprises screening IMA links having an IMA group ID that are involved in  
3 unintentional IMA group restarts for a matching stored IMA group ID.

4 7. The method of claim 3, further comprising looping back all links.

1 8. The method of claim 3, further comprising marking all links as unusable.

1 9. In a digital communications network, a system comprising:  
2 means for monitoring a plurality of links to determine state changes of the  
3 links;  
4 means for enforcing an IMA-ID check when an insufficient links state is  
5 reached;  
6 means for relaxing the IMA-ID check when all the links are in an error  
7 state; and  
8 means for re-enforcing an IMA-ID check when at least one link of the  
9 plurality of links recovers from an error state .



1        10.    The system of claim 9, further comprising means for enforcing the IMA-ID  
2        check if a near end IMA-ID does not match a far end IMA-ID.

1        11.    In a digital communications network, a system comprising:  
2                means for restarting an existing IMA group, comprising  
3                        means for learning an IMA group ID of a far end IMA group;  
4                        means for making the IMA group ID persistent;  
5                        means for using only links matching the IMA group ID; and  
6                        means for placing non-matching links in an unusable state.

1        12.    The system of claim 11, wherein learning an IMA group ID further  
2        comprises:  
3                means for resynchronizing the IMA group; and  
4                means for extracting the IMA group ID from a first connected link.

1        13.    The system of claim 11, wherein making the IMA group ID persistent  
2        further comprises storing a new IMA group ID in memory.

1        14.    The system of claim 11, wherein using only matching links further  
2        comprises screening IMA links having an IMA group ID that are involved in  
3        unintentional IMA group restarts for a matching stored IMA group ID.

1        15.    The system of claim 11, further comprising looping back all links.



1 16. The system of claim 11, further comprising marking all links as unusable.

1 17. A computer-readable medium having stored thereon a plurality of  
2 instructions, said plurality of instructions when executed by a computer, cause  
3 said computer to perform the method comprising:

4 monitoring a plurality of links to determine state changes of the links;  
5 enforcing an IMA-ID check when an insufficient links state is reached;  
6 relaxing the IMA-ID check when all the links are in an error state; and  
7 re-enforcing an IMA-ID check when at least one link of the plurality of links  
8 recovers from an error state .

1 18. The computer-readable medium of claim 17 having stored thereon  
2 additional instructions, said additional instructions when executed by a computer,  
3 cause said computer to further perform enforcing the IMA-ID check if a near end  
4 IMA-ID does not match a far end IMA-ID.

1 19. In a digital communications network, a method comprising:  
2 restarting an existing IMA group, comprising  
3 learning an IMA group ID of a far end IMA group;  
4 making the IMA group ID persistent;  
5 using only links matching the IMA group ID; and  
6 placing non-matching links in an unusable state.



1        20.    The computer-readable medium of claim 19 having stored thereon  
2        additional instructions, said additional instructions when executed by a computer  
3        for learning an IMA group ID, cause said computer to further perform:  
4                resynchronizing the IMA group; and  
5                extracting the IMA group ID from a first connected link.

1        21.    The computer-readable medium of claim 19 having stored thereon  
2        additional instructions, said additional instructions when executed by a computer  
3        for making the IMA group ID persistent, cause said computer to further perform  
4        storing a new IMA group ID in memory.

1        22.    The computer-readable medium of claim 19 having stored thereon  
2        additional instructions, said additional instructions when executed by a computer  
3        for using only matching links, cause said computer to further perform screening  
4        IMA links having an IMA group ID that are involved in unintentional IMA group  
5        restarts for a matching stored IMA group ID.

1        23.    The computer-readable medium of claim 19 having stored thereon  
2        additional instructions, said additional instructions when executed by a computer,  
3        cause said computer to further perform looping back all links.



1        24.    The computer-readable medium of claim 19 having stored thereon  
2        additional instructions, said additional instructions when executed by a computer,  
3        cause said computer to further perform marking all links as unusable.

1  
2        25.    A line card for use in a switch, comprising:  
3        a central processing unit (CPU);  
4        a system controller connected to the central processing unit;  
5        random access memory (RAM) connected to the system controller; and  
6        a group restarter connected to the CPU, controller, and RAM wherein the  
7        group restarter restarts an IMA group.

1        26.    The switch of claim 25 wherein the processor monitors a plurality of links  
2        to determine state changes of the links and enforces an IMA-ID check when an  
3        insufficient links state is reached.

1        27.    The switch of claim 26 wherein the processor relaxes the IMA-ID check  
2        when all the links are in an error state and re-enforces an IMA-ID check  
3        when at least one link of the plurality of links recovers from an error state.

1        28.    The switch of claim 27, wherein the processor enforces the IMA-ID check  
2        if a near end IMA-ID does not match a far end IMA-ID.